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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C12Q 1/68, C12P 19/34		A3	(11) International Publication Number: WO 00/50869 (43) International Publication Date: 31 August 2000 (31.08.00)
(21) International Application Number: PCT/US00/04876 (22) International Filing Date: 24 February 2000 (24.02.00) (30) Priority Data: 09/259,898 26 February 1999 (26.02.99) US (71) Applicant: INCYTE PHARMACEUTICALS, INC. [US/US]; 3174 Porter Drive, Palo Alto, CA 94304 (US). (72) Inventors: ARNOLD, Lyle; Incyte Pharmaceuticals, Microarray Systems, 6519 Dumbarton Circle, Fremont, CA 94555 (US). THERIAULT, Thomas; Incyte Pharmaceuticals, Microarray Systems, 6519 Dumbarton Circle, Fremont, CA 94555 (US). BEDILION, Tod; Incyte Pharmaceuticals, Microarray Systems, 6519 Dumbarton Circle, Fremont, CA 94555 (US). (74) Agent: OSMAN, Richard, Aron; Science & Technology Law Group 75 Denise Drive, Hillborough, CA 94010 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 2 November 2000 (02.11.00)	
(54) Title: SNP DETECTION			
<p>The diagram illustrates the SNP detection process. It starts with a 'Patient Sample' represented by a wavy line. This sample is directed towards 'SNP Detectors', which are shown as two small circles. One detector has a solid black dot, while the other has a dashed circle. An arrow points from the detectors to a 'Substrate' layer, which is depicted as a hatched horizontal band. On the substrate, there is a 'Linker' represented by a short vertical line, and an 'Array Element' represented by a longer horizontal line extending from the linker. A 'Unique Capture' step is shown where the patient sample binds to a specific array element. Below this, the text 'Single Nucleotide Specificity' is written, indicating that each array element is designed to bind to a unique sequence of nucleotides.</p>			
(57) Abstract			
<p>A method for detecting multiple SNPs (single nucleotide polymorphisms) in a population of target polynucleotides comprising combining target polynucleotides, capture polynucleotides and SNP probes wherein each target comprises a different capture region and a different SNP region, the capture polynucleotides are immobilized and arrayed at corresponding discrete elements on a substrate and each capture polynucleotide comprises a sequence which specifically hybridizes to a corresponding different capture region, each SNP probe comprises a sequence complementary to a corresponding different SNP region, and the target polynucleotides are immobilized by hybridizing to the capture polynucleotides; and detecting the presence of each SNP probe on the substrate wherein the presence of a given SNP probe at a given element indicates the presence of the corresponding SNP in the corresponding target polynucleotide.</p>			

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/04876

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :C12Q 1/68; C12P 19/34
US CL :435/6, 91.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 96/31622 A1 (ISIS INNOVATION LIMITED) 10 October 1996, abstract, example 7	1-16
Y	US 5,801,155 A (KUTYAVIN et al) 01 September 1998, abstract, cols. 1, 2, and 9.	7-10
Y	US 5,633,134 A (SHUBER) 27 May 1997, abstract, cols. 1 and 2.	7-8
Y	GUESDON, J.L. Immunoenzymatic techniques applied to the specific detection of nucleic acids. J. of Immunological Methods. 1992, Vol. 150, pages 33-49, especially pages 36 and 37, Figure 2.	1-16

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	*T*	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
B earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*&	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
05 JUNE 2000	17 AUG 2000

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer JEHANNE SOUAYA Telephone No. (703) 308-1255
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/04876

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

STN, Medline, Caplus, USpatful
search terms: snp, single nucleotide polymorphism, variation, variant, mutation, point mutation; solid support, sandwich hybridization, hybridization, probe